Probability Modeling of Landscape Change

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This paper presents both the theoretical framework and simulation results for a modeling approach to land use and land cover change. In particular, we have developed a multinomial logit model which determines the likelihood of observing a number of farm systems as a function of economic and demographic variables. We have extracted from this model the probability functions, parameterized in these various attributes. We are able, then, to consider landscape changes along settlement highways associated with small holder agriculture. We develop our simulations in a GIS context in order to produce simulation results in spatial form. This enables us to visually track the development of landscape pattern as a function of colonization processes, and to compute associated edge effects through application of GIS buffering functions.

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